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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,430	03/29/2002	Tetsujiro Kondo	450108-03399	6919

20999 7590 12/21/2006
FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER

HAN, QI

ART UNIT	PAPER NUMBER
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2626

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/089,430		KONDO ET AL.	
	Examiner		Art Unit	
	Qi Han		2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006 and 23 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7,8,10,11,13,14,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7,8,10,11,13,14,16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Response to Amendment

3. This communication is responsive to the applicant's amendment filed on 08/28/2006 and RCE filed on 10/23/2006. The applicant(s) amended claims 1-2, 4-5, 7-8, 10-11, 13-14 and 16-17, and cancelled claims 3, 6, 9, 12, 15 and 18 (see the amendment: pages 5-10).

The examiner withdraws the disclosure objection regarding issue (1), because the applicant amended the specification. The examiner also withdraws the disclosure objection regarding issue (4), because the applicant further clarified/explained the issue being a matter of design choice, which is recorded as admission of prior art and may be used for future rejection against the applicant himself. The objections regarding new matter, and issues 2-3 will be

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sustained, because the applicant's arguments are either not persuasive or not responsive (see below).

The examiner withdraws the previous claim objection, because the applicant amended the corresponding claims.

The examiner withdraws the previous claim rejection under 35 USC 112 1st and 2nd, because the applicant cancelled the corresponding claims.

Response to Arguments

4. Applicant's arguments filed on 08/28/2006 with respect to the claim rejection under 35 USC 102 and/or 103 have been fully considered but are moot in view of the new ground(s) of rejection, since the amended claims introduce new issue/new subject matter and the arguments are based on the newly amended claims (see detail claim rejection below).

Specification and Drawing

5. The amendment filed 04/05/2006 and/or 08/28/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

Regarding Equation 4, according to the admission in the amendment that "applicants respectfully submit that a simple trigonometric transform will transform Equation 4 into the well-known Hamming function definition" (the amendment filed on 04/05/2006: page 14, last paragraph), the amended equation 4 (see the amendment: page 4) introduces new subject matter,

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because i) the amended equation 4 is mathematically different from the original equation (see specification: page 12); ii) it is not well known to one skilled in the art to prove that the old and new equations can be transformed from one to the other; and/or iii) applicants fail to specifically prove their statement above. Further, it is noted that the argument in the amendment filed on 08/28/2006 still fail to prove that the original and newly amended equations can be transformed from one to the other. It is also noted that the first website provided by applicant (see in the amendment filed on 08/28/2006, page 12) only shows the Hamming window itself, but not a proof of the two equations being transformed from each other, as asserted by the applicant; the second website does not provide a readily evidence regarding the issue at all. It is reminded that it is applicant's responsibility to prove the two equation can be transformed each other (not the examiner's responsibility). Applicant is required to cancel the new matter in the reply to this Office Action; or to provide appropriate evidence to prove the issue iii above, or file a CIP.

6. The disclosure is objected to because of the following (keep the same issue numbers with the previous office action):

(2) the amended terms "the **data value**[level] of each class tap" (the amendment: on page 4, paragraph 2) is unclear. Appropriate correction or explanation is required. The applicant failed to response to the issue in the amendment.

(3) regarding equation 10, some symbols in the amended equation (the amendment: page 6) are still not readable (too small or due to fax transfer problem). A clearly readable copy of the amendment is required.

It is reminded that there is **no new subject matter** allowed in the future amendment. If any new subject matter or material change has to be added to the original specification by amendment, filing a CIP is a proper solution, according to the requirement of 35 USC 112 for the claimed limitations.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 7-8 and 16-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claims 7-8, the claimed “a program storage medium for making a digital audio signal processing device execute a program”, can be interpreted as any storage medium storing non-functional descriptive material, such as CD storing video or audio program, since herein the medium is not necessary a computer readable medium, the program is not necessary a computer program or instruction and the device is not necessary a computer/micro-processor operated device, so that the claim, as whole, is directed to non-functional descriptive material and is non-statutory subject matter.

Further, even if the claim may be interpreted as a computer program, it is noted that a computer program per se is merely a set of instructions capable of being executed by a computer, but itself is not a process and USPTO personnel should treat a claim for a computer program,

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without the computer-readable medium needed to realize/execute the computer program's functionality, as nonstatutory functional descriptive material (see MPEP 2106).

Regarding claims 16-17, the rejection is based on the same reason described for claims 7-8, because the claims 16-17 include the same or similar problematic limitation as claims 7-8.

8. To expedite a complete examination of the instant application the claims rejection under 35 U.S.C 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1, 4 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 1, 4 and 7, the newly amended limitations "selecting a prediction method..." and "by the selected prediction method" introduce new subject matter, because the limitations are not supported by the specification.

Claim Rejections - 35 USC § 103

10. Claims 1-2, 4-5, 7-8, 10-11, 13-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over IMAI et al. (US 6,360,198 B1) hereinafter referenced as IMAI in view of THYSSEN (US 2002/0138256 A1).

As per **claim 1**, as best understood in view of the claim rejection under 35 USC 112 1st (see above), IMAI discloses ‘audio processing method, audio processing apparatus, and recording reproduction apparatus cable of outputting voice having regular pitch regardless of reproduction speed’ (title), comprising:

“a step of cutting parts out of the digital audio signal by plural windows having different sizes and calculating their respective self correlation coefficients” (col. 2, lines 20-26, ‘after having performed digital signal processing on the audio data’; col. 7, lines 22-26, ‘performing (calculating) auto-correlation (self correlation) analysis (necessary including the correlation coefficients) for each of the voiced sound, unvoiced sound, and silent...’ ; col. 7, line 62 to col. 8, line 15, ‘auto-correlation analysis is performed using a plurality of window widths (corresponding to plural windows having different sizes) having different values’);

“a step of classifying the parts into a class based on the calculation results of the self correlation coefficients”, (col. 7, lines 20-26, ‘classifying the resulting data into voiced sound, unvoiced sound, and silent...processing of performing auto-correlation (self correlation) analysis for each of the voiced sound, unvoiced sound, and silent’; Fig. 1);

“a step of generating a new digital audio signal which is obtained by the digital audio signal”, (col. 8, lines 37-38 and Fig. 1, ‘supplies (generates) the thus-read-out data (new digital audio signal) to the audio data connection part’).

But, IMAI does not expressly disclose “selecting a prediction method corresponding to the obtained class” and generating the new digital signal “by prediction-operating the digital audio signal by a prediction method corresponding to the obtained class”. However, the feature is well known in the art as evidenced by THYSEN who discloses ‘low complexity random codebook structure’ (title), comprising ‘classifies noise, unvoiced speech, and voiced speech so that an appropriate modeling scheme (prediction method) corresponding to particular classification can be selected’ (paragraph 32), using ‘linear prediction analysis’ (paragraph 32) and ‘linear prediction (LP) parameters’ (paragraph 60), including ‘LSF coefficients’ and ‘LTP (long-term prediction)’ for ‘prediction of the pitch lag’ with different methods based on classified input speech (paragraphs 86-138), and teaches that ‘efficient signal representations can be determined by estimating and applying certain prediction parameters to represent the signal (prediction-operating the digital signal)’ (paragraph 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify IMAI by providing different calculations (methods or operations) for different predictive parameters corresponding to classification to represent (generating) the signal, as taught by THYSEN, for the purpose (motivation) of modeling a signal value according to an earlier value and/or providing more perceptually accurate reproduction of the noise signal (THYSEN: paragraphs 4 and 9).

As per **claim 2** (depending on claim 1), IMAI in view of THYSEN further discloses “at least a general searching range and a local searching range are provided as targets for calculating the self correlation coefficients with respect to the digital audio signal, and the self correlation coefficients are calculated based on the searching ranges”, (THYSEN: paragraph 82, ‘the autocorrelations of the windowed speech are computed’; ‘paragraphs 115-139, ‘estimation of the

precise pitch lag... based on the normalized correlation (self correlation)', 'the size L is defined according to open-loop pitch lag T_{op} with the corresponding normalized correlation', and 'one integer k is maximizing the R_k (the normalized correlation) in the range $[T_{op} - 10, T_{op} + 10]$ (local range) bounded by [17-145] (general range)' and other related ranges; paragraphs 143-160, 'local integer shifting range [SR0, SR1] (local range, herein the range $[T_{op} - 10, T_{op} + 10]$ is referred as global range) for searching').

Regarding **claim 4**, it recites a digital audio signal processing device (apparatus). As best understood in view of the claim rejection under 35 USC 112 1st (see above), the rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitations as claim 1.

Regarding **claim 7**, it recites a program storage medium. As best understood in view of the claim rejection under 35 USC 101 and 112 1st (see above), the rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitations as claim 1.

Regarding **claims 5 and 8**, the rejection is based on the same reason described for claim 2, because the claims recite the same or similar limitations as claim 2, respectively.

As per **claim 10**, the rejection for claimed elements 2-4 (herein corresponding to steps 2-4) is based on the same reason described for claim 1, because the elements recite the same or similar limitations as claim 1. In addition, IMAI in view of THYSSEN further discloses:

"a step of generating, from a desired digital audio signal, a student digital audio signal in which the digital audio signal is degraded", (IMAI: col. 2, lines 443-44, 'thinning of the audio data'; col. 7, 'decimation processing of decreasing the sampling rate of the audio data', which inherently causes the audio signal (data) degraded, as claimed).

“a step of storing the prediction coefficient associated with each class” (THYSSEN: Fig. 2 and paragraph 67, ‘adaptive codebook 257’ and ‘fixed codebook 261’ and ‘speech classifier’ in block 279’, ‘parameters from (prediction coefficient stored in) the adaptive and fixed codebooks 257 and 261’; paragraphs 210 and 222, ‘the LTP parameter (or the adaptive codebook parameters) are the pitch lag’, ‘a speech classifier is used to direct the searching procedure of the fixed codebook’; in addition, it is well known in the art that the codebook structures necessarily include the indexes (corresponding to classes) and parameters (corresponding to prediction coefficients)).

Regarding **claim 11** (depending on claim 10), the rejection is based on the same reason described for claim 2, because the claim recites the same or similar limitations as claim 2.

Regarding **claim 13**, it recites a learning device. The rejection is based on the same reason described for claim 10, because the claim recites the same or similar limitations as claim 10.

Regarding **claim 16**, it recites a program storage medium. As best understood in view of the claim rejection under 35 USC 101 (see above), the rejection is based on the same reason described for claim 10, because the claim recites the same or similar limitations as claim 10.

Regarding **claims 14 and 17**, the rejection is based on the same reason described for claim 11, because the claims recite the same or similar limitations as claim 11, respectively.

Conclusion

11. Please address mail to be delivered by the United States Postal Service (USPS) as follows:

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (571) 272-7604. The examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see <http://pair-direct.uspto.gov>.

QH/qh

December 16, 2006



12/16/06